



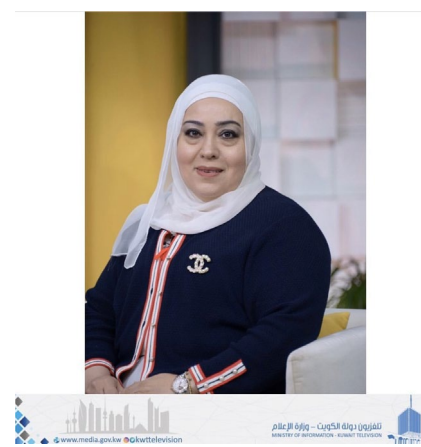
# Multilingual Children's Speech Development

# **ARABIC (Kuwaiti)**

## **Multilingual Children's Speech Development**

**Presented by: Ayyad, H., Alqattan, S. & Bernhardt, B.M.**

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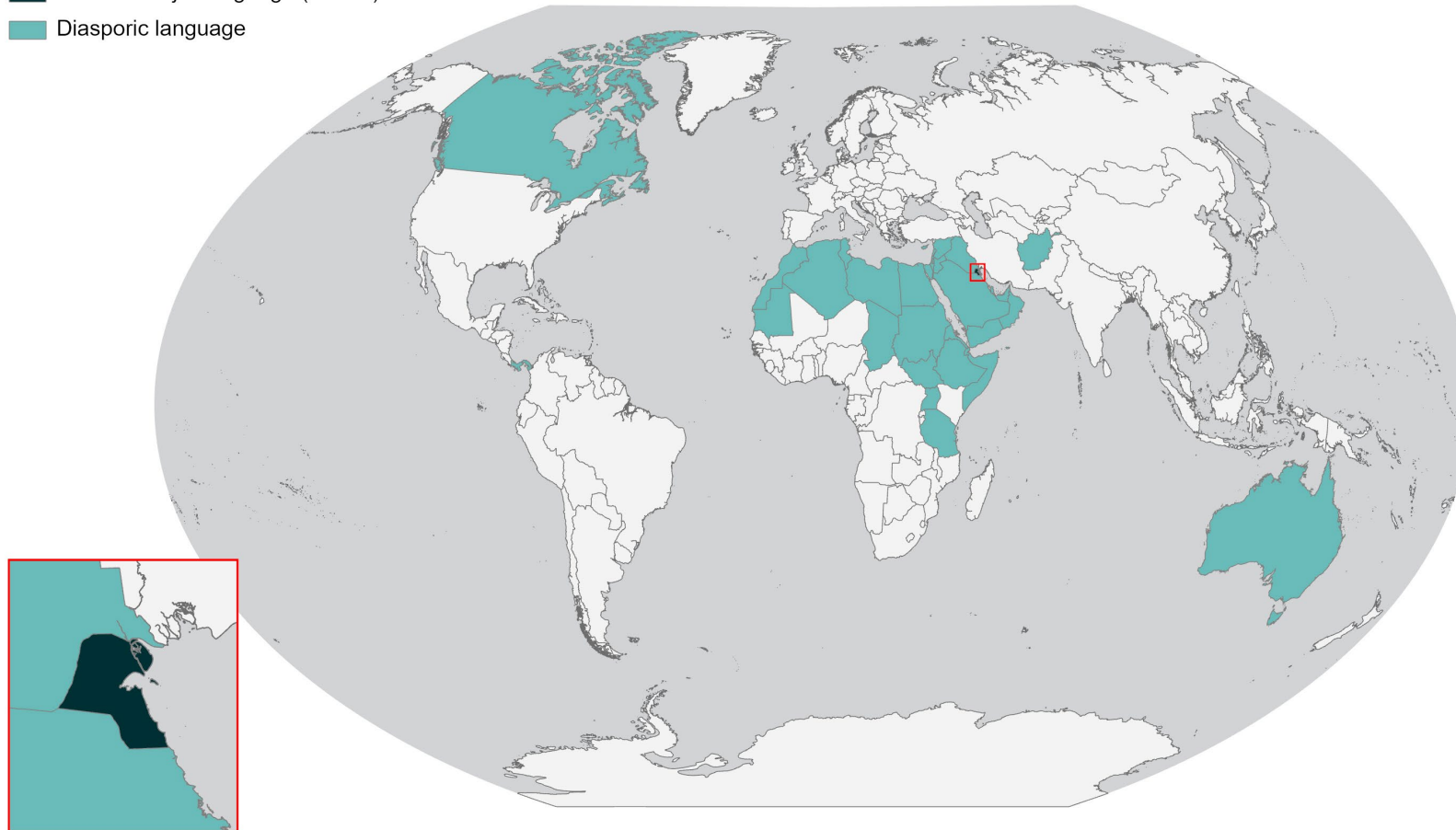
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# Arabic (Kuwait)

- **Commonly spoken in**
  - Kuwait
- **Dialects and variants**
  - Modern Kuwaiti Arabic, Bedouin Kuwaiti Arabic
- **Writing**
  - Right to left. 28 letters of a unique script
  - Example: اضطراب مخارج الأصوات الكلامية

# Arabic (Kuwaiti) map

- Official / major language (dialect)
- Diasporic language



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# Arabic (Kuwaiti)

## Speech Components

- **Consonants (29+):** /b t t<sup>ʕ</sup> d d<sup>ʕ</sup> k g (ɣ) q ʔ m n (ŋ) f s s<sup>ʕ</sup> z θ ð ð<sup>ʕ</sup> ʃ tʃ ɟ ʁ χ ʁ ħ ʕ j w r l (ʔ) /
  - Short and long; (*rare, sub-dialectal, contextual*).
  - Other consonants may appear in borrowed words.
- **Consonant clusters (many, especially across syllable boundaries within-word):**  
*often with short epenthetic vowel*
  - less marked like word-initial (WI) /sm/, /fl/ and word-final (WF) /nt/
  - more marked, WI, e.g., /gf, ʃf, sb, dʒd/
- **Vowels (3 short, 5 long plus allophones):** /a(ː) i (i) u (u)/, /eː, oː/ /ɪ, ε, æ, a, ə, ɜ, ʊ, ʌ, ɔ, ɒ/
- **Tones (0):** None
- **Phonotactic restrictions:** C<sub>(0-2)</sub>V<sub>(1-2)</sub>C<sub>(0-2)</sub> Feet: one to three syllables. Interactions between vowels and consonants (contextual effects)
- **Prosody:** Word stress -- predictable: sensitive to syllable weight (and segment length) and morphology.

# Arabic (Kuwaiti)

## Age of Acquisition

### ■ Consonants

- **Early** /b m f w t d n ʃ l j k g ŋ x ħ ʔ h / **Middle** /tʳ ɖʳ z sʳ zʳ ʃ y ɣ ʁ ʕ ʧ / **Late** /q θ ð s z dʒ r/

### ■ Consonant clusters

- **Early word-initial (WI)** - /fl/      **Middle WI** - /ɣj, bj, sm, ɣʃ/      **Late WI** - with late-acquired Cs
- Less reduction word-medial than WI or word-final (WF) before age four years

### ■ Vowels

- No studies of vowel acquisition

### ■ Tones

- No tones in language

# Arabic (Kuwait)

## Speech Development

- **Percentage correct/match, Consonants; Whole Word Match; (Word Shape CV Mach)**
  - 3;0-3;3: Estimate -- 74% consonant match (range 0-100% match across individual Cs; not all Cs met criteria for calculation); (AlQattan, 2015)
  - 3;10-5;2: (Ayyad, 2011)
    - 90+% consonant match across individual Cs, 80 children; 90% WSM;
    - Whole Word Match (all segments in word match) - 80% (SD 14%)
- **Intelligibility**
  - No studies
- **Common phonological patterns**
  - **Word structure:** cluster reduction, (epenthesis)
  - **Segments:** De-emphasis, stopping, /r/ > [l], sibilant degrooving, devoicing of stops/fricatives/affricate

# Arabic (Kuwaiti) Children with Speech Sound Disorders

## ■ Also called

- اضطراب مخارج الأصوات الكلامية 'speech sound disorder'
- الاضطرابات الفونولوجية 'phonological disorder'
- اضطراب مخارج الأصوات الكلامية 'articulation disorder'
- الأبراكسيا الكلامية لدى الأطفال 'childhood apraxia of speech'
- تلثم الكلام 'dysarthria'

## ■ Research has focused on children with Down Syndrome or severe hearing impairment

## ■ Studies (examples)

- Ayyad, H., AlBustan, S., & Ayyad, F. (2021). Phonological development in school-aged Kuwaiti Arabic children with Down Syndrome: A pilot study. *Journal of Communication Disorders* 93(3): 106128, 1-15. <https://doi.org/10.1016/j.jcomdis.2021.106128>
- Ayyad, H. & Bernhardt, B.M. (2009). Phonological development in Kuwaiti Arabic: A preliminary report. *Clinical Linguistics and Phonetics*, 23, 794-807

# Arabic (Kuwaiti) Speech Assessments

- **Kuwaiti Arabic Articulation and Phonology Test (KAAP-T)** (Ayyad & Bernhardt, 2017)

# Arabic (Kuwaiti) Speech Interventions

- Based on English literature

- [Maximal opposition therapy] (Alsaad, McCabe & Purcell, 2019)
- [Nonlinear phonological intervention] (Ayyad & Bernhardt, 2023)

Alsaad, M., McCabe, P., & Purcell, A. (2019). The application of the maximal opposition therapy approach to an Arabic-speaking child. *Journal of Communication Disorders*, 81, 105913, 1-10. <https://doi.org/10.1016/j.jcomdis.2019.105913>

Ayyad, H. & Bernhardt, B.M. (2023). When liquids and fricatives outrank stops:A Kuwaiti Arabic-speaking child with Down Syndrome and protracted phonological development. *Clinical Linguistics & Phonetics*, 36(7), 670-682. <https://doi.org/10.1080/02699206.2022.2046172>

# References

## Book chapter

- Ayyad, H., AlQuattan, S., & Bernhardt, B.M. (2025). Arabic (Kuwaiti) speech development. In S. McLeod (Ed.). *The Oxford handbook of speech development in languages of the world*. Oxford University Press.

## Presentation

- Ayyad, H., AlQuattan, S., & Bernhardt, B.M. (2023). *Arabic (Kuwaiti): Multilingual children's speech development*. Charles Sturt University, Australia.  
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  - Sharynne McLeod and Helen L. Blake, Charles Sturt University, Australia